CLAIMS

What is claimed is:

1. A process for producing polymer comprising producing a polymer slurry in a liquid medium which comprises:

reacting a monomer in a hydrocarbon diluent inert to polymerization to form a polymerization effluent;

continuously discharging said polymerization effluent through a discharge valve into a first transfer conduit;

heating said polymerization effluent in said first transfer conduit to a temperature below the fusion temperature of the polymer;

continuously communicating said polymerization effluent through said first transfer conduit to a first flash tank wherein the pressure in said first flash tank and the temperature of said heated polymerization effluent are such as to produce as a vapor from about 50% to about 100% of the liquid medium and said vapor is condensable, without compression, by heat exchange with a fluid having a temperature in the range of about 65° F to about 135° F;

continuously condensing said vapor obtained in said first flash step, without compression, by heat exchange with a fluid having a temperature in the range of about 65° F to about 135° F;

continuously discharging from said first flash tank concentrated polymer solids/slurry to a second flash tank through a seal chamber wherein said seal chamber has a length (l) and a diameter (d) such as to maintain a volume of concentrated polymer solids/slurry in the said seal chamber sufficient to maintain a pressure seal;

continuously communicating said concentrated polymer solids/slurry to a second flash tank through a seal chamber exit reducer defined by substantially straight sides inclined at an angle to that of horizontal equal to or greater than the angle of slide of the polymer solids which remain after removal of about 50 to 100% of the inert diluent therefrom;

continuously exposing the remaining liquid medium in said concentrated polymer solids/slurry to a further pressure reduction from a higher pressure of from about 140 psia to about 315 psia in said first flash tank to a lower pressure of from

about 15 psia to about 35 psia in said second flash tank wherein the pressure of said second flash tank and the temperature of said heated concentrated polymer slurry are such as to produce as a vapor substantially all of the remaining diluent and monomer and said vapor is condensable with compression and cooling; and

discharging from said second flash tank polymer solids which are substantially free of diluent or unreacted monomer.

2. The process of claim 1 wherein the first flash tank has a bottom defined by substantially straight sides inclined at an angle to that of horizontal equal to or greater than the angle of slide of the concentrated polymer solids/slurry which remain after removal of about 50 to 100% of the inert diluent therefrom.

3. The process of claim 1 wherein said first transfer conduit is heated by a heater means of a heating capacity capable of providing a quantity of heat sufficient to bring said polymer slurry therein to a temperature below the fusion temperature of the polymer solids.

4. The process of claim 3 wherein said liquid diluent is isobutane.2. .